

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 09315897
PUBLICATION DATE : 09-12-97

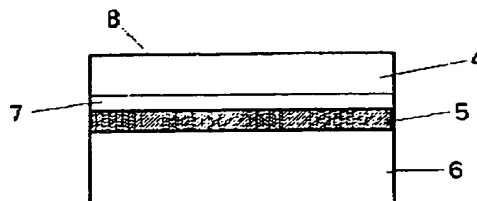
APPLICATION DATE : 31-05-96
APPLICATION NUMBER : 08137805

APPLICANT : SUMITOMO ELECTRIC IND LTD;

INVENTOR : OKAMOTO AKIRA;

INT.CL. : C30B 29/18 C30B 5/00 C30B 19/00
G02B 6/12 H01L 41/18 H01L 41/24
H03H 3/02 // H03B 5/32

TITLE : SINGLE CRYSTAL OXIDE THIN FILM
HAVING ROCK CRYSTAL TYPE
CRYSTAL STRUCTURE AND ITS
PRODUCTION



ABSTRACT : PROBLEM TO BE SOLVED: To inexpensively produce a single crystal oxide thin film having an arbitrary film thickness and a smooth surface by forming the single crystal oxide thin film on a rock crystal type single crystal substrate.

SOLUTION: A precursor soln. containing 20-98mol.% GeO_2 , 0-78mol.% SiO_2 and 0.05-2mol.% Al or an alkali metal is applied on the rock crystal type single crystal substrate 6 and heated at 300-600°C to form a first intermediate layer 5. Then the precursor soln. containing 20-98mol.% GeO_2 , 0-78mol.% SiO_2 and 0.05-2mol.% Al or the alkali metal is applied on the first intermediate layer 5 and heated at 750-1100°C to form a second intermediate layer 7. Then, a precursor soln. containing silicon is applied on the second intermediate layer 7 and heated to a stabilizing temp. (750-1200°C) of the rock crystal type crystal structure to form a single crystal oxide thin film 4, and the intermediate layers 5 and 7 are dissolved and removed in water to obtain the single crystal oxide thin film 4 having the rock crystal type single crystal structure having 5-100nm surface roughness.

COPYRIGHT: (C)1997,JPO